

Students Perception of Health and Safety Training Practices in the Construction Industry

Adam J. Will

California Polytechnic State University
San Luis Obispo, CA

Since its inception in 1970, the Occupational Safety and Health Act has steadily decreased the rate in which construction injuries, illnesses, and deaths occur in the industry. The Occupational Safety and Health Administration (OSHA) helps enforce these new standards yet some research suggests that safety performance appears to be a response to safety initiatives beyond compliance. Identifying workers' perceptions of the training they receive is critical to the design and development of effective workplace safety programs. Utilizing a quantitative survey, data was collected from the Cal Poly Construction Management student body to find out how they were taught jobsite safety and what they found as effective safety training practices during their internships or part-time jobs. The results of this survey showed that construction students understand that jobsite safety training is important, but are indifferent on the effectiveness of their employer's safety practices. Additionally, students believed that regular safety meetings and toolbox or tailgate talks were the most effective ways they were trained in safety during their employment. The findings of this survey reveal techniques that construction companies can implement to improve the safety and health of their future employees in the industry.

Key Words: Safety, Health, Training, OSHA, Construction, Cal Poly

Introduction

The management of the health and safety of the employee has always been a challenge in the construction industry. Characteristics of the industry such as dynamic work environments, the use of heavy and dangerous equipment, and practically unavoidable worker-hazard interactions contribute to the disproportionate rate of injury and illness compared to other industries (Hallowell, Gambatese, 2009). However, many firms attempt to reduce these rates by implementing safety practices and programs into each project. The goal of these training efforts is to equip every worker, whether that be in the office or on site, with the skills necessary to recognize and manage safety hazards in complex settings.

Employers in the industry invest large amounts of money into designing, developing and delivering these safety training programs (Hinze, Gambatese, 2003). Despite these efforts, not much has changed and both fatal and nonfatal injury rates in the construction industry remain high. Poor training and poor retention of relevant knowledge among construction workers are two factors that are responsible for this high incidence of injury. Therefore, it would be of great value to the industry to review their training practices and make recommendations for enhanced delivery (Wilkins, 2011).

Construction Management students at Cal Poly, San Luis Obispo receive such training when they become new interns or employees in the industry. To help understand what they believe were effective safety training practices during their internships or part-time jobs, a survey about their experiences in the industry was presented. The results from this survey will be used to give recommendations to employers on what best practices there are for teaching new, incoming interns or employees.

Literature Review

In 1970, Congress findings showed that personal injuries and illnesses arising out of work situations impose a substantial burden up interstate commerce in terms of lost production, wage loss, medical expenses, and disability compensation payments (OSH Act 1970). To combat this, they passed the Occupational Safety and Health Act, a legislation with the goal of making sure employers provide their employees with a hazard-free environment in the

workplace. Congress had to establish an effective enforcement program that imposed many standards and regulations regarding occupational safety and health to achieve this goal. That enforcement came from the Occupational Safety and Health Administration (OSHA), whose mission is to ensure the protection of workers and prevent work-related injuries, illnesses, and deaths by not only enforcing standards, but providing training, outreach, education and assistance (OSHA 10-Hour).

Two of the most popular OSHA outreach training programs are the OSHA 10-hour and OSHA 30-hour Construction courses. These online courses were established by ClickSafety, who provide training solutions to help organizations meet their training objectives and build a safety culture in the construction industry. The intent of these courses is to teach the student about recognition, avoidance, abatement and prevention of safety and health hazards in the workplace, with focuses on OSHA construction industry standards (OSHA 10-Hour). In 2011, data was collected from a sample of over 100 construction professionals across the United States who had completed at least completed an OSHA 10-hour Construction Safety Training Course. Each professional filled out a questionnaire that broke down into three sections: general questions regarding why and how they completed the OSHA 10-hour training, their level of knowledge retained from completing the training, and their experiences on whether it was of relevance or not to their work (Wilkins, 2011).

Of the professionals to complete the questionnaire, nearly 74% indicated that they only participated in the program was because it was a requirement from their employers. From those respondents, the mean score of the knowledge examination was 50%, compared to 65% for those respondents who participated in the OSHA 10-hour Construction Safety Training because they chose to (Wilkins, 2011). Also found that 35% of respondents disagreed to the proposition that “the training you received was relevant to your work experience, while 33% chose not to specify. Wilkins overall conclusion of his study was that there are a variety of training strategies out there and the challenge of incorporating relevant information is difficult with the diverse demographic make-up of the construction workforce.

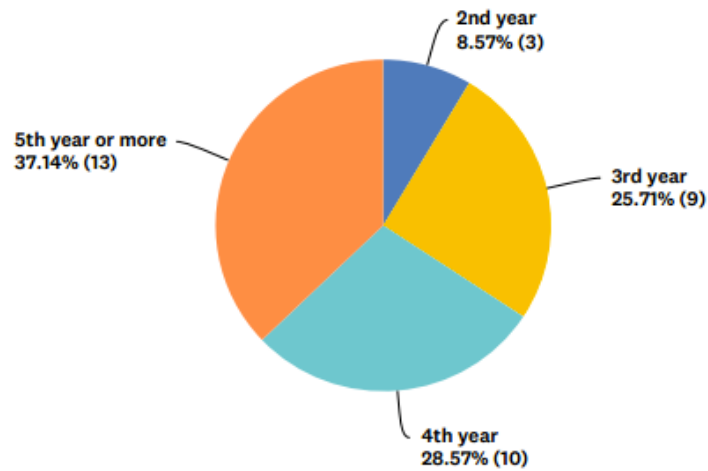
Although the improvements in construction safety appear to be a direct response to the enforcement of the OSHA regulations for the years following the act, research suggests that safety performance in recent years appears to be a response to safety initiatives that extend beyond compliance (Hinze, Hallowell, Baud, 2013). In other words, other safety practices or standards used outside of OSHA’s spectrum also seems to be effective, if not more, in teaching and training employees construction safety. It seems as though there are other means of teaching safety that will allow employees to retain the information better. Whether that be individual online training or out in the field, construction employees must be able to retain and understand this information in order to maintain a safe and healthy jobsite.

Methodology

The methodology chosen for this research paper is much like the research done by Wilkins, except that this quantitative data is gathered from the Cal Poly Construction management student body. This survey to the students will include questions pertaining to jobsite safety, particularly if the companies they previously worked for were effective in teaching them, as the new construction intern. This survey was intended to see what effective ways students were taught jobsite safety during their internships and/or part-time jobs. It also was intended to discover some of the most effective ways companies could teach their new, incoming interns and employees about jobsite safety. The current data has been collected from 35 Cal Poly San Luis Obispo Construction Management students.

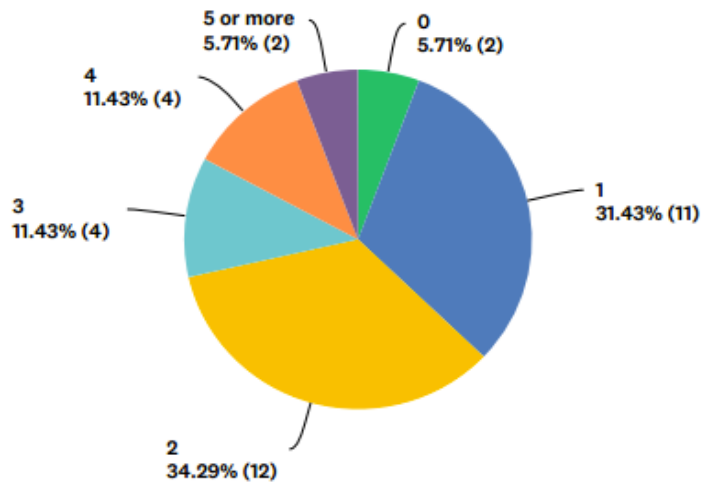
Q1 What is your current class standing at Cal Poly?

Answered: 35 Skipped: 0



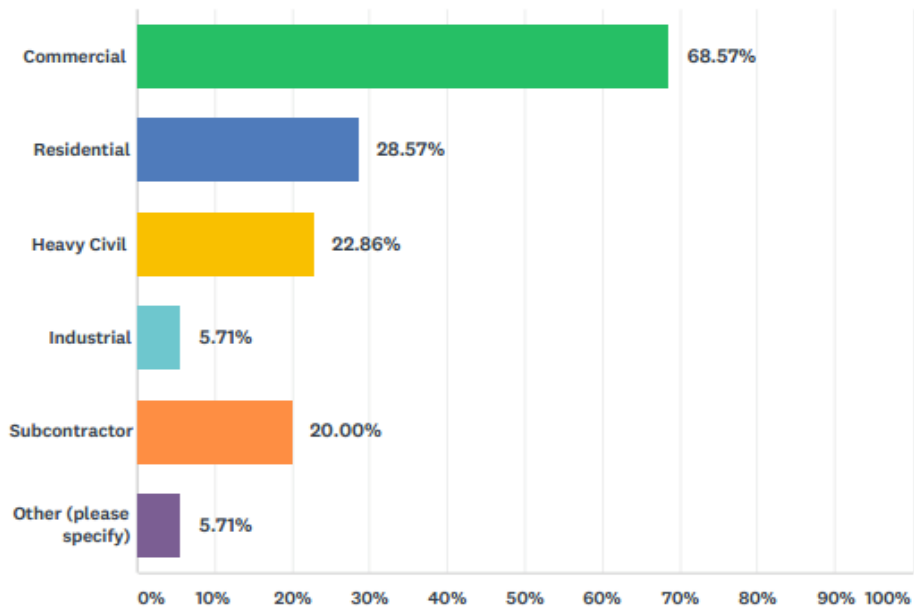
Q2 How many internships or part-time jobs have you worked for so far in your construction career?

Answered: 35 Skipped: 0



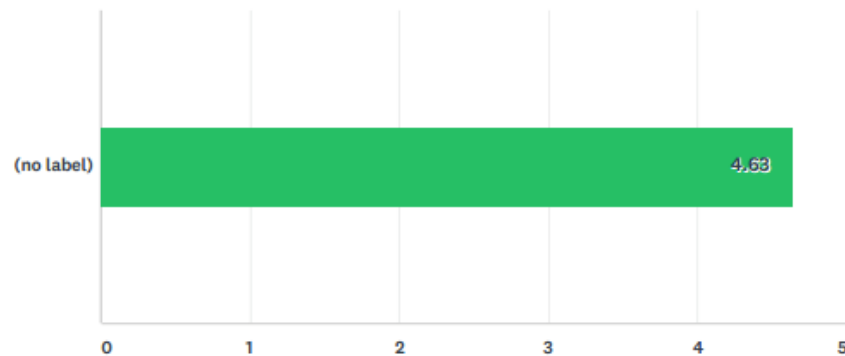
Q3 What type(s) of construction companies have you work for?

Answered: 35 Skipped: 0



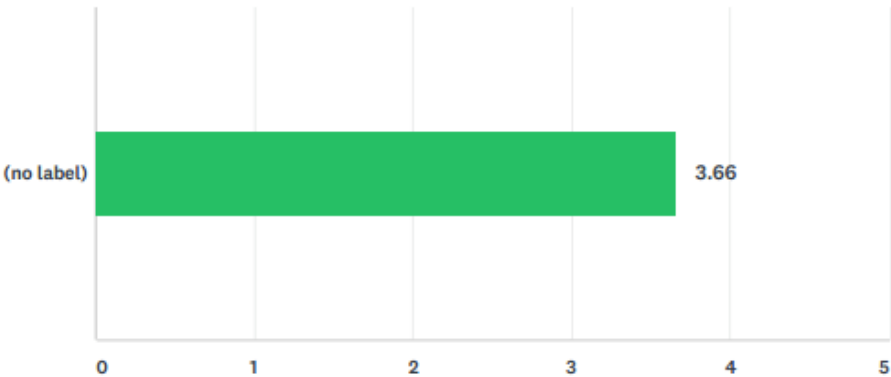
Q4 On a scale from 1 to 5, 5 being the most important, how important do you believe it is to understand jobsite safety as a new construction employee or intern?

Answered: 35 Skipped: 0



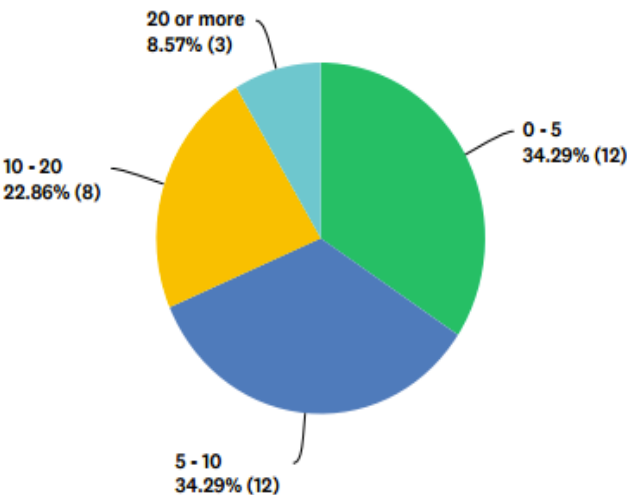
Q5 On a scale from 1 to 5, 5 being the most effective, how effective do you believe your employers were in teaching you jobsite safety?

Answered: 35 Skipped: 0



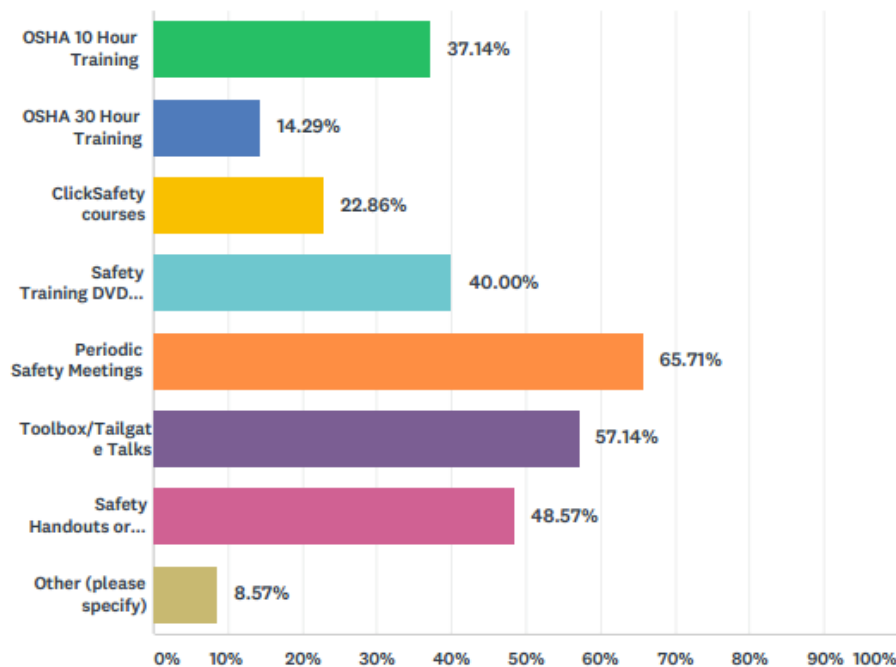
Q6 How many Man Hours did your company take to discuss jobsite safety during your employment?

Answered: 35 Skipped: 0



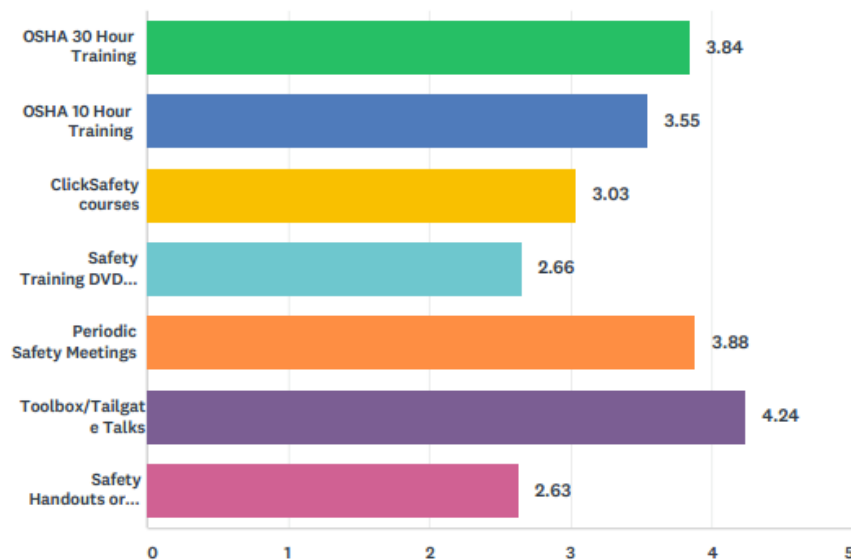
Q7 How were you taught about jobsite safety during your employment?

Answered: 35 Skipped: 0



Q8 On a scale from 1 to 5, 5 being the most effective, please rate each option based on it's effectiveness in teaching jobsite safety in your opinion

Answered: 34 Skipped: 1



Results Analysis

Of the 35 respondents to this survey, more than half have been studying construction management at Cal Poly for three or more years. Similarly, most respondents have had two or more internships or part-time jobs in the industry. The more industry experience the respondent had, the more they can discuss their experiences with health and safety in the construction industry. A large majority of respondents worked for commercial construction companies with a small sample of residential, heavy civil, and subcontracting companies.

When asked how important they believed that understanding jobsite safety as a new construction employee or intern on a one to five scale with five being the most important, the average response from the respondents was 4.63 or ninety-two percent (92%). Cal Poly construction students learn about health and safety in their curriculum and take the knowledge they gain into their internships or part-time jobs and build on it. They understand health and safety in the industry is a top priority and should be taken seriously. Respondents were then asked, on a similar scale, how effective their employers were in teaching them jobsite safety while working as an intern or new employee. The average response was 3.66 or seventy-three percent (73%), with almost half of the respondents replying with a three or lower. The result of this question shows that construction employers are lacking in areas related to safety training and there is need for improvement.

Cal Poly Construction Management students were then asked what ways they were taught jobsite safety during their employment and how effective these different practices or programs were to their learning. The choices they were given in these questions come from research into jobsite safety practices and programs used today, as well as from personal experience in the industry. Sixty-five percent (65%) of respondents were taught safety during periodic safety meetings, whether that be specific to one project or the company as a whole. The respondents also found these periodic safety meetings to be a more effective way of teaching them safety, with the average response of 3.88 out of 5 or seventy-seven percent (77%). Fifty-seven percent (57%) were taught during toolbox or tailgate talks. These talks are informal group discussions that focus on an aspect of safety related to the project they are working on. Student respondents found that these talks were the most effective in teaching jobsite safety during their internships or part-time jobs. What was interesting was only thirty-seven percent (37%) on respondents were taught jobsite safety using the OSHA 10-Hour Construction Safety Training program, yet they found it to be fairly effective with the average response of 3.84 out of 5 or seventy-six percent (76%).

Conclusion

The results of this survey show that there are many different ways that students have been taught construction jobsite safety in their experience. The respondents believed that periodic safety meetings and toolbox or tailgate talks were among the most effective techniques. This practice is used by many construction companies in the industry but can be neglected at times during a project. Respondents also illustrated that the OSHA 10-Hour Construction Safety Training was among the most effective training practices, although only a third of them had received such training. The difficulty with training new construction interns and employees in this way is that the program can be costly and trainees do not retain the knowledge very well, like we saw in Wilkins study. An effective way to use all of these practices at once would be to stick to the periodic meetings and talks on the jobsite, but allow employees to take the 10-Hour training if they would like to. Then, everyone is taught safety on the jobsite and the ones who want to explore more into safety can use the OSHA 10-Hour Construction Safety Training program.

Cal Poly Construction Management students represent the next generation in the construction workforce. Making sure that they understand the dangerous conditions and possibility of injury is imperative to an establishing successful job, company, and safety culture. The safety training that they receive in school and in the field directly effects their interpretations and reactions to hazardous situation that happen every day in the construction industry.

References

Hallowell, M. and Gambatese, J. (2009). "Construction Safety Risk Mitigation." *Journal of Construction Engineering and Management*, 135(12): 1316-1323.

- Hinze, J. and Gambatese, J. (2003). "Factors That Influence Safety Performance of Specialty Contractors." *Journal of Construction Engineering and Management*, 129(2): 159-164.
- Hinze, J., Hallowell, M., and Baud, K. (2013). "Construction-Safety Best Practices and Relationships to Safety Performance." *Journal of Construction Engineering and Management*, 139(10): 04013006.
- Namian, M., Albert, A., Zuluaga, C.,m and Jaselskis, E. (2016). "Improving Hazard Recognition Performance and Safety Training Outcomes: Integrating Strategies for Training Transfer." *Journal of Construction Engineering and Economics*. 142(10): 04016048.
- Occupational Safety and Health Administration. (2011). 10-Hour Construction with Voice-Authentication. *United States Department of Labor*. Retrieved from <https://www.clicksafety.com/courses/detail/osha-10-hour-construction-with-voice-authentication>
- Occupational Safety and Health Administration. (2011). OSH Act of 1970. *United States Department of Labor*. Retrieved from <https://www.osha.gov/laws-regs/oshact/completeoshact>
- Wilkins, J. (2011). "Construction workers' perceptions of health and safety training programmes." *Construction Management and Economics*, 29: 1017-1026.